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THE NASA GLOBAL TROPOSPHERIC EXPERIMENT: PACIFIC EXPLORATORY
MISSION-WEST(B) - MISSION SCIENTIST PROGRAM PLAN

Submitted to:
Mr. James Hoell, Jr.
Mail Stop 483
NASA Langley Research Center
Hampton, VA 23665-5225

From:
Dr. Douglas D. Davis
School of Earth and Atmospheric Science
Georgia Institute of Technology
Atlanta, GA 30332

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During the 3 1/2 year time period of NASA grant # NCC1-148, the major focus of this principal investigator has been in three general areas: 1) planning activities to prepare for the airborne field missions PEMWest(A) and PEMWest(B) (Pacific Exploratory Mission West); 2) serving as co-mission scientist during both field studies; and 3) helping to organize and serving as co-chairperson for several data workshops as related to facilitating the publication of the scientific results from the aforementioned field studies.

In the first area this PI worked closely with his co-mission scientist, Dr. Shaw Liu, the Mission Meteorologist, Dr. Reginal Newell, and the Mission Manager, Mr. Jim Hoell, to assess how to optimize the scientific return on each of the above mentioned major atmospheric-chemistry field studies. That this indeed was achieved is reflected in the very large number of high quality scientific publications that have already been submitted and that continue to evolve from these field studies.

The field studies themselves were carried out in September-October 1991 and February-March 1994. The first mission consisted of 18 flights, 8 of which were survey flights and 10 that were intensives. During PEMWest(A) intensives were scheduled out of Guam(3), Hong Kong(2), Yokota, Japan(4) and Hawaii(1). Other layover locations during this program included Anchorage, Alaska, Okinawa, Japan, and Wake Is. PEMWest(B) encompassed 16 total flights, 6 survey flights and 10 intensives. The intensives were flown out of Guam(4), Hong Kong(2), and Yokota, Japan(4). Layover stops were scheduled at Hawaii, and Anchorage, Alaska. Both field

studies were carried out without any major sacrifice/compromise to the original scientific objectives laid out for each respective program.

As of this date there have been a total of 3 data workshops, all of which have been focused on the results from PEMWest(A). The first workshop for PEMWest(B) is now scheduled for November of 1994. The results from the PEMWest(A) workshops, as noted earlier in this text, have been very positive with over 25 papers having now been submitted to JGR and another 10 now reaching the completion phase. Of this total this PI is a co-author on 9 of these, three of which his research group is the primary source of the interpretative analysis (i.e., see attached list of publications). It is expected that an equal number of publications will be forth coming from PEMWest(B).

PEMWEST(A) MANUSCRIPTS

Reactive Nitrogen Over the Pacific Ocean During PEM-West A: Y. Kondo, H. Ziereis, M. Koike, S. Kawakami, G. L. Gregory, G. W. Sachse, J. B. Singh, D. D. Davis, and J. T. Merrill.

Low Ozone in the Marine Boundary Layer of the Tropical Pacific Ocean: H. B. Singh, G. L. Gregory, B. Anderson, E. Browell, G. W. Sachse, D. D. Davis, J. Crawford, J. D. Bradshaw, R. Talbot, D. R. Blake, D. Thornton, R. Newell, and J. Merrill.

Hydrogen Peroxide and Methylhydroperoxide Distributions Related to Ozone and Odd-Hydrogen Over the North Pacific in the Fall of 1991: B. G. Heikes, M. Lee, J. Bradshaw, S. Sandholm, D. D. Davis, J. Crawford, J. Rodriguez, S. Liu, S. McKeen, D. Thornton, G. Gregory, R. Talbot, and D. Blake.

Sulfur Dioxide as a Source of CN in the Upper Troposphere of the Pacific Ocean: D. C. Thornton, A. R. Bandy, B. W. Bloomquist, D. D. Davis, and R. W. Talbot.

A Photostationary State Analysis of the NO₂-NO System Based on Airborne Observations from the Western and Central North Pacific: J. Crawford, D. Davis, J. Bradshaw, S. Sandholm, G. Gregory, G. Sachse, D. Blake, B. Anderson, J. Collins, H. Singh, B. Heikes, R. Talbot, and J. Rodriguez.

Atmospheric Sampling of Super-Typhoon Mireille with the NASA DC-8 Aircraft on 27 September 1991 during PEMWest-A: R. Newell, W. Hu, Z-X Wu, H. Akimoto, B. Anderson, E. Browell, G. Gregory, G. Sachse, M. Shipham, S. Bachmeir, A. Bandy, D. Thornton, D. Blake, J. Bradshaw, S. Sandholm, J. Collins, B. Heikes, J. Merrill, K. Kelly, S. Liu, Y. Kondo, M. Koike, C Liu, F. Safamati, H. Singh, J. Dibb, R. Talbot, J. Crawford, and D. Davis.

An Assessment of the Photochemical Ozone Tendency in the Western North Pacific as Inferred from PEMWest(A) Observations during Fall 1991: D. Davis, J. Crawford, G. Chen, J. Bradshaw, S. Sandholm, G. Sachse, G. Gregory, B. Anderson, D. Blake, F. Rowland, Y. Kondo, H. Singh, R. Talbot, B. Heikes, J. Collins, J. Rodriguez, and E. Browell.

Reactive Nitrogen and Ozone over the Western Pacific: Distribution, Partitioning and Sources Based on the 1991 PEMWest(A) Expedition: H. Singh, D. Herlth, R. Kolyer, L. Salas, J. Bradshaw, S. Sandholm, D. Davis, Y. Kondo, M. Koike, R. Talbot, G. Gregory, G. Sachse, E. Browell, D. Blake, F. Rowland, R. Newell, J. Merrill, B. Heikes, S. Liu, P. Crutzen, M. Kanakidon.

A High Altitude Analysis of NO_x Sources in the Western North Pacific as Observed during the PEMWest(A) Field Study: D. Davis, J. Crawford, D. Slusher, H. Singh, G. Sachse, J. Bradshaw, S. Sandholm, G. Gregory, J. Barrick, D. Blake, F. Rowland, Y. Kondo, and A. Bandy.